

Application No. 10/043,389
Amendment dated April 26, 2004
Reply to Office Action of December 24, 2003
Attorney Docket No.: PHNL000578

REMARKS

Applicants respond as follows to the December 24, 2003 Office action. Reconsideration is respectfully requested.

Claims 1-18 are pending in this application. Claims 1-18 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Pat. No. 5,894,124 to Iwabuchi et al. ("Iwabuchi") in view U.S. Pat. No 5,149,968 to Sato ("Sato"), further in view of U.S. Pat. No 6,252,412 to Talbot et al. ("Talbot"), and still further in view of U.S. Pat. No. 6,504,393 to Lo et al. ("Lo").

Claim 1 recites "a focusing device for forming a focus of the primary beam in the vicinity of the specimen holder by means of electrostatic electrodes." Claims 8 and 9 similarly recite electrostatic electrodes for focusing the primary beam. All of the cited references describe a magnetic objective lens for focusing the primary beam. None of the references describe an electrostatic objective lens, that is, electrostatic electrodes for focusing the primary beam.

Because the cited references do teach an element of the claim, applicants request the rejection be withdrawn.

Moreover, as described in Talbot: "The field of such a lens acts as 'magnetic bottle' and allows for collimation and efficient collection of secondary electrons without the need to apply a strong electrostatic collection field. A strong electrostatic collection field is undesirable as it may cause unstable surface charging and can preclude independent optimization of the wafer bias, extraction potential and energy filter to enhance voltage contrast." Col. 9, lines 16-23. Thus, Talbot teaches against the use of an electrostatic lens, which would not provide the "magnetic bottle" effect, and there is no motivation to alter the references to use an electrostatic objective lens.

Moreover, claim 1 recites "the apparatus is provided with power supply means for adjusting a potential difference between the specimen to be irradiated by means of the apparatus and the final electrode, the power supply means electrically connected between the specimen holder and the electrostatic final electrode." The examiner states that: "It is inherent in Figure 1, as described above, that control unit 18 is used as the power supply for both the final electrode 17, and the sample stage 10, which implies that they are electrically connected, as recited in amended claim 1."

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Applicant submits control unit 18 is not used as a power supply for sample stage 10. The relation described between control unit 18 and sample 10 is that control unit 18 changes the voltage on electrode 19 and 20 depending on the tilt of the sample 10. Thus, control unit 18 must have a connection to sample stage 10 to determine its tilt. Iwabuchi neither expressly teaches nor implies that control unit 18 applies a voltage to sample 10. The connection shown between control unit 18 and sample stage 10 is required to determine the tilt.

MPEP 2163.07(a) states:

"To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"

Applicants submit that since a function is provided that explains the connection between control unit 18 and sample stage 10 and no other function is implied, the function of applying a voltage to sample stage 10 is not "necessarily present" in Figure 1 and is not therefore inherent. Applicants request, therefore, that the rejection be withdrawn.

Claims 7 and 8 stand rejected for obviousness over Iwabuchi in view of Sato and further in view of Talbot. The Examiner states that it is inherent in Talbot that the collection efficiency is between 25% and 75%. Claim 8 also states "varying the potential differences maximizes the voltage contrast." As shown in applicant's graph in FIGS. 3a and 3b, applicant has discovered that it is possible to operate in a region that provides for both satisfactory collection efficiency and voltage contrast. As shown in FIG. 3b, the collection efficiency decreases as voltage increases past about 50 V. FIG. 3a shows that the voltage contrast improves to a maximum near 90 volts, and degrades at greater or lesser voltages.

Applicant representative fails to find in Talbot any indication of the voltage range in which Talbot is operating. There is no indication that Talbot has discovered the relationship between voltage contrast and collection efficiency discovered by applicant. It is only "inherent" in Talbot if Talbot is necessarily operating in the efficiency range of between 25% and 75%, and because Talbot does not describe the bias voltage range in which it operates, applicants submit that it is not inherent that Talbot is operating within that range.

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Applicants are submitting via-first class mail today a certified copy of the priority application as requested.

Applicants note that applicants' representative submitted an Information Disclosure Statement on December 23, 2003 submitting references cited in an international search report. Applicants request that the Examiner acknowledge the submission by sign and returning a copy of the PTO/SB/08B that listed the newly cited references.

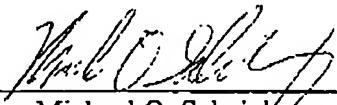
In light of the above noted remarks, this application is believed in condition for allowance and notice thereof is respectfully solicited. The Examiner is asked to contact applicants' attorney at 512-328-9510 if there are any questions.

Respectfully submitted,

Date:

4/26/04

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